

## Parameters of Metro vehicle

Metro car		Rotating components	
Car weight (empty) [tons]	30.4	Wheel diameter (new) [mm]	830
Car weight (full) [tons]	45.1	Wheel diameter (worn out) [mm]	760
Car length [m]	18.2	Wheel weight [kg]	330
Capacity driver car [passengers]	210	Axle weight (without disc brake & gearbox) [kg]	920
Capacity middle car [passengers]	223	Axle maximum diameter [mm]	160
Max speed [km h <sup>-1</sup> ]	72	DC motor rotor weight [kg]	380
Motor nominal power [kW]	264	Rotor maximum diameter [mm]	390
Motor peak power [kW]	420	Disc brake weight [kg]	152
Maximum acceleration [m s <sup>-2</sup> ]	1.33	Gearbox ratio ( $\gamma$ ) [-]	5.945 : 1
Emergency deceleration [m s <sup>-2</sup> ]	1.7	Gearbox weight [kg]	520

Vehicle	<i>base</i>	<i>optimistic</i>
Rolling resistance coefficient ( $f_R$ ) [-]	0.005	0.005
Aerodynamic drag coefficient ( $C_w$ ) [-]	0.6	0.6
Front area of metro train [m <sup>2</sup> ]	7.7	7.7
Gearbox efficiency [%]	<b>93</b>	<b>97</b>
Motors efficiency [%]	90	90
Motor drive efficiency [%]	<b>91</b>	<b>95</b>
DC/DC converter efficiency (hybrids only) [%]	<b>91</b>	<b>95</b>
Auxiliaries consumption per car [kW]	20	20